

Rules and Regulations For MBA Project (AR17)

Project Course shall be evaluated for 200 marks, out of which, 80 marks shall be for Sessional Evaluation and 120 marks for the End Examination (Viva–Voce). Every student shall be required to submit a thesis or dissertation on a topic approved by the Department Project Review Committee (DPRC).

1. A DPRC shall be constituted with the Head of the Department, Project Coordinator, Supervisor and two senior faculty members.
2. A student has to undergo practical training for a period of 5 to 6 weeks in a Corporate Enterprise after the Second Semester during summer vacation. During training period, the students should work on a specific problem related to the elective subject. At the end of practical training, the student should submit a certificate obtained from the organization. The students have to prepare major project report based on the previous training experience.
3. Project Co-Ordinator will allocate guides in consultation with the HOD based on the Electives preferred by the students.
4. The student shall prepare a Major Project Report under the supervision of a guide from the faculty of management studies. However, the students who prepare Major Project Report in the area of systems can also work under the guidance of Faculty member from Computer Science and Engineering Department.
5. A student has to submit, in consultation with his project supervisor, the title, abstract and plan of action of his project work before DPRC for approval. The student can initiate the Project work, at the beginning of the III semester by obtaining the approval from the DPRC. The project duration is for two semesters.
6. A student shall submit his status report with at least 4 reviews (2 reviews per Semester) conducted by the DPRC.
7. The Sessional Evaluation shall be made on the basis of reviews and on the progress of the work evaluated by DPRC.
8. Four copies of the Project Thesis certified by the supervisor and HOD shall be submitted to the Exam Section after getting plagiarism check (Similarity index should be less than 50%).
9. The external examiner shall be appointed by the Principal from a panel of three examiners, who are eminent in that particular field given by the HOD. The project thesis is sent to the same examiner for the adjudication.
10. If the report of the examiner is favorable, Viva–Voce examination shall be conducted by the Guide, HOD & External Examiner who adjudicated the Thesis.

- (a) Student has to secure 40% of marks in the Viva–Voce examination and a minimum aggregate of 50% of total marks (Viva–Voce examination and Sessional evaluation taken together) to pass.
 - (b) If the report of the Viva–Voce is fail (Viva Voce marks <40%), the student shall retake the Viva–Voce examination only after three months. If he fails to get a satisfactory report at the second Viva–Voce examination, the student has to re-register for the project and complete the project within the stipulated time after taking the approval from the Principal.
11. If the report of the examiner is unfavorable, the student shall revise and resubmit the Thesis, in the time frame as decided by the PRC. If the report of the examiner is unfavorable again, the thesis shall be summarily rejected. The student has to re-register for the project and complete the project within the stipulated time after taking the approval from the Principal.

ORGANIZATION OF THESIS

1. Title page
2. Certificate
3. Certificate issued by outside organization (if any)
4. Acknowledgements
5. Abstract
6. Index
7. List of Figures
8. List of Tables
9. Body of the thesis as follows:
 1. Introduction
 - Need for the study
 - Scope of the study
 - Objectives of the study
 - Methodology
 - Limitations
 2. Industry Profile
 3. Company Profile
 4. Theoretical Frame Work
 5. Data Analysis and Interpretation
 6. Conclusion
 - Findings
 - Suggestions
 - Future Scope
 7. Bibliography
 8. Questionnaire
 9. Appendix

Guidelines

- Every copy should be accompanied by a softcopy in CD along with required software and tools
- No. of copies are 04(Four) **1 for Guide, 1 for Department, 1 for Library and 1 copy for student.**

The following should be used for thesis preparation

- Black cover with Gold printing should be used for binding.
- A4 executive bond paper should be used.
- Page No's should be in the centre with font size 11 and font style Times New Roman.
- A margin of 3.75 cm (1½ inch) is to be given on the binding edge while on the other sides it is to be 2.5 cm (1 inch).
- All the text should be in Times New Roman style with 1.5 paragraph spacing.
 - Chapter Names – Size 16 Bold
 - Topics of Chapter – Size 14
 - Sub Topics – Size 12
 - Any Other text – Size 11

A Project Report on

Optimal Placement of Capacitors in Radial Distribution Systems Using Teaching Learning Based Optimization Algorithm

Submitted in partial fulfillment of the requirements for the award of the degree of

MASTER OF BUSINESS ADMINISTRATION

By

**APPANA AMMAJI
17A91E0001**

Under the guidance of

**Dr. K V S R Murthy,
Professor & Head -R&D**



DEPARTMENT OF MANAGEMENT STUDIES

ADITYA ENGINEERING COLLEGE (A)

An Autonomous Institution

(Approved by AICTE, Affiliated to JNTUK, Accredited by NBA, NAAC with 'A' Grade)

Aditya Nagar, ADB Road, Surampalem

2017-2021

ADITYA ENGINEERING COLLEGE (A)

An Autonomous Institution

(Approved by AICTE, Affiliated to JNTUK, Accredited by NBA, NAAC with 'A' Grade)

Aditya Nagar, ADB Road, Surampalem

DEPARTMENT OF MANAGEMENT STUDIES



CERTIFICATE

This is to certify that the project report entitled “**Optimal Placement of Capacitors in Radial Distribution Systems Using Teaching Learning Based Optimization Algorithm**” is a bonafide record of the project work done by A. AMMAJI (17A91E0001) under my supervision and guidance, in partial fulfillment of the requirements for the award of Degree of Master of Technology in Power Electronics and Drives from JNTU Kakinada.

Dr. K V S R Murthy

Project Guide

Dr. V. SRINIVASA RAO

Head of the Department

DECLARATION

I hereby declare that the project **“Optimal Placement of Capacitors in Radial Distribution Systems Using Teaching Learning Based Optimization Algorithm”** has been carried out by me and this work has been submitted to Aditya Engineering College(A), Surampalem, affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY KAKINADA in partial fulfillment of the requirements for the award of degree of Master of Technology.

I further declare that this project work has not been submitted in full or part for the award of any other degree in any other educational institutions.

A.AMMAJI
17A91E0001

ACKNOWLEDGEMENTS

I am thankful to my guide **Dr. K. V. S. R. MURTHY**, Professor and Head - R&D who has spared his valuable time. I am indebted to him without whom I would not have successfully completed the project.

I also wish to convey my sincere thanks to Dr. V. SRINIVASA RAO, Professor and HOD of Management Studies Department for his technical support and valuable suggestions. I also wish to convey my sincere thanks to all faculty of Management Studies Department for their support and valuable suggestions.

I am thankful to the Dr. M. SREENIVASA REDDY, Principal, Aditya Engineering College for providing appropriate environment required for this project and thankful to Faculty of Management Studies Department for this encouragement and cooperation for this successful completion of the project.

A.AMMAJI
17A91E0001

Optimal Placement of Capacitors in Radial Distribution Systems Using Teaching Learning Based Optimization Algorithm

Abstract:

This project presents Teaching Learning Based Optimization (TLBO) approach to minimize power loss and energy cost by optimal placement of capacitors in radial distribution systems. The proposed algorithm is based on two basic concept of education namely teaching phase and learning phase. In first phase, learners improve their knowledge or ability through the teaching methodology of teacher and in second part learners increase their knowledge by interactions among themselves. To check the feasibility, the proposed method is applied on standard 15, 33, 69 and 85 bus radial distribution systems. Numerical experiments are included to demonstrate that the proposed TLBO can obtain better quality solution than many existing techniques like genetic algorithm (GA), particle swarm optimization (PSO), direct search algorithm (DSA) and mixed integer linear programming (MILP) approach.

CONTENTS

Chapter No.	Title	Page No.
	List of Tables	i
	List of Figures	ii
	Abstract	iii
1	INTRODUCTION	1
2	INDUSTRY PROFILE	12
3	COMPANY PROFILE	13
4	THEORITICAL FRAME WORK	19
	4.1	19
	4.2	20
	4.3	20
5	DATA ANALYSIS INTERPRETATION	36
6	CONCLUSION	37
	BIBLIOGRAPHY	38
	Questionnaire	39
	Appendix-I	40

LIST OF TABLES

Tab. No.	Label	Page No.
4.1	Optimal Locations and Sizes of Capacitors on 15 bus system	23
4.2	Voltages on 15 Bus System before and after Compensation	24
4.3	Optimal Locations and Sizes of Capacitor on 33 Bus System	26
4.4	Voltages on 33 Bus system before and after Compensation	26
4.5	Optimal Locations and Sizes of Capacitors on 69 Bus system	29
4.6	Voltages on 69 Bus system before and after Compensation	31
4.7	Optimal Locations and Sizes of Capacitors on 85 Bus system	33
4.8	Voltages on 85 Bus system before and after Compensation	34
4.9	Comparison of Cost before and after Compensation including Net saving	35
A1	Load Data of 15 Bus System	36
A2	Load Data of 33 Bus System	37
A3	Load Data of 69 Bus System	38
A4	Network Data of 69 Bus System	39

LIST OF FIGURES

Fig. No.	Label	Page No.
4.1	The schematic diagram of the 15 bus radial distribution system	23
4.2	Voltage profile before and after capacitor placement on 15 bus System	24
4.3	The schematic diagram of the 33 bus radial distribution system	26
4.4	Voltage profile before and after capacitor placement on 33 bus System	27
4.5	The schematic diagram of the 69 bus radial distribution system	30
4.6	Voltage profile before and after capacitor placement on 69 bus System	31
4.7	The schematic diagram of the 85 bus radial distribution system	34
4.8	Voltage profile before and after capacitor placement on 85 busSystem	34